Claims

1. A method for preparing a flexible organic electronic device comprising at least a first electrode comprising a transparent conductive oxide layer, an organic active layer, a second electrode and a polymeric substrate layer, whereby the transparent conductive layer is applied on a removable substrate layer or one or more transparent layers previously applied onto the removable substrate layer at a temperature of at least 250°C, and the removable substrate layer is removed when the polymeric substrate layer has been applied.

2. A method according to claim 1 comprising the steps of:

a) applying the first electrode, which comprises a transparent conductive oxide layer onto the removable substrate layer or on one or more transparent layers previously applied onto the removable substrate layer;

b) applying the organic active layer onto the transparent conductive layer;

c) applying the second electrode onto the organic active layer;

d) applying the polymeric substrate layer onto the second electrode; and

e) removing the removable substrate layer.

3. A method according to claim 1 comprising the steps of:

a) applying the first electrode, which comprises a transparent conductive oxide layer onto the removable substrate;

b) applying one or more transparent layers onto the transparent conductive oxide layer

c) applying the polymeric substrate layer onto the transparent conductive layer;

d) removing the removable substrate layer;

e) applying the organic active layer onto the transparent conductive layer on the side from which the removable substrate layer has been removed;

f) applying the second electrode onto the organic active layer; and

g) applying a further polymeric substrate layer onto the second electrode.

4. A method according to one of claims 1-3, wherein the one or more transparent layers previously applied onto the removable substrate layer comprise one or more transparent layers selected from the group consisting of SiO2, SiO_{2-x}, Al_2O_3, MgO, ZnO, ZrO_2, TiO_2, TiN, ZnS, SiO_xC_y, Si_3N_4 and/or SiO_xN_y.

5. A method according to any one of claims 1-4, wherein the transparent conductive oxide layer is applied onto the removable substrate layer or one or more transparent layers previously applied onto the removable substrate layer by means of deposition process such as Atomic Layer Deposition (ALD), sol/gel deposition, hot spraying, Atmospheric Pressure Chemical Vapour Deposition (APCVD), Low Pressure Chemical Vapour Deposition (LPCVD) or a Plasma Enhanced Chemical Vapour Deposition (PECVD) process.

6. A method according to claim 5, wherein the transparent conductive oxide layer is applied onto the removable substrate layer or one or more transparent layers previously applied onto the removable substrate layer by means of a APCVD process.

7. A method according to any one of claims 1-6, wherein the organic active layer is applied onto the transparent conductive oxide layer by means of a spin coating or a printing process.

8. A method according to any one of claims 1-7, wherein the second electrode is applied onto the organic active layer by means of a sputtering,

plasma enhanced chemical vapour deposition (PECVD), or a low pressure vapour deposition process.

9. A method according to any one of claims 1-8, wherein the removable substrate layer is removed by means of an etching process.

10. A method according to any of claims 1-9, wherein a planomer layer is applied onto the transparent conductive oxide layer.

11. A method according to any of claims 1-10, wherein a transparent metal layer is applied onto the transparent conductive oxide layer.

12. A method according to any one of claims 1-11 wherein a polymeric substrate layer is applied onto the second electrode and the transparent conductive oxide layer by means of a lamination process.

13. A method according to any one of claims 1-12, wherein the transparent conductive oxide layer comprises fluorine doped tin oxide.

14. A method according to any one of claims 1-13, wherein the polymeric substrate layer comprises polyesters, polyimids and/or polyolefins.

15. A method according to any one of claims 1-14, wherein the second electrode comprises calcium, barium, lithium fluoride, and/or magnesium covered with a layer of aluminium, silver or gold.

16. A method according to any one of claims 1-15, wherein the removable substrate layer comprises a foil of aluminium.

17. A flexible organic electronic device obtainable by a process according to any one of claims 1-16.

18. A device according to claim 17, wherein the transparent layers above the organic active layer display a water permeability of less than 0.01g/m^2/day, and an oxygen permeability of less than 10^{-2} cc/m^2/d.

19. A device according to claim 17 or 18, wherein the device is a light emitting diode (LED).